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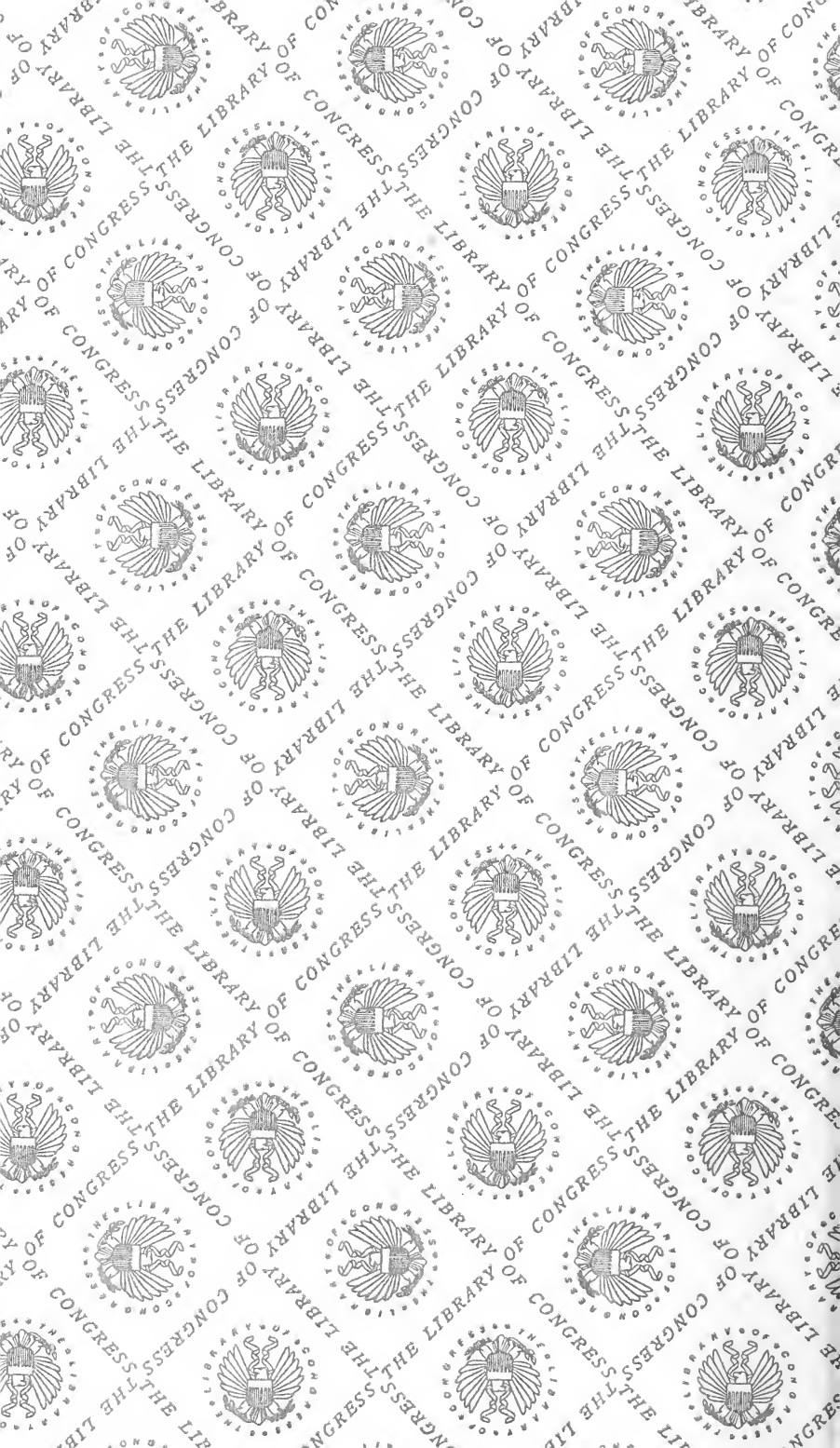
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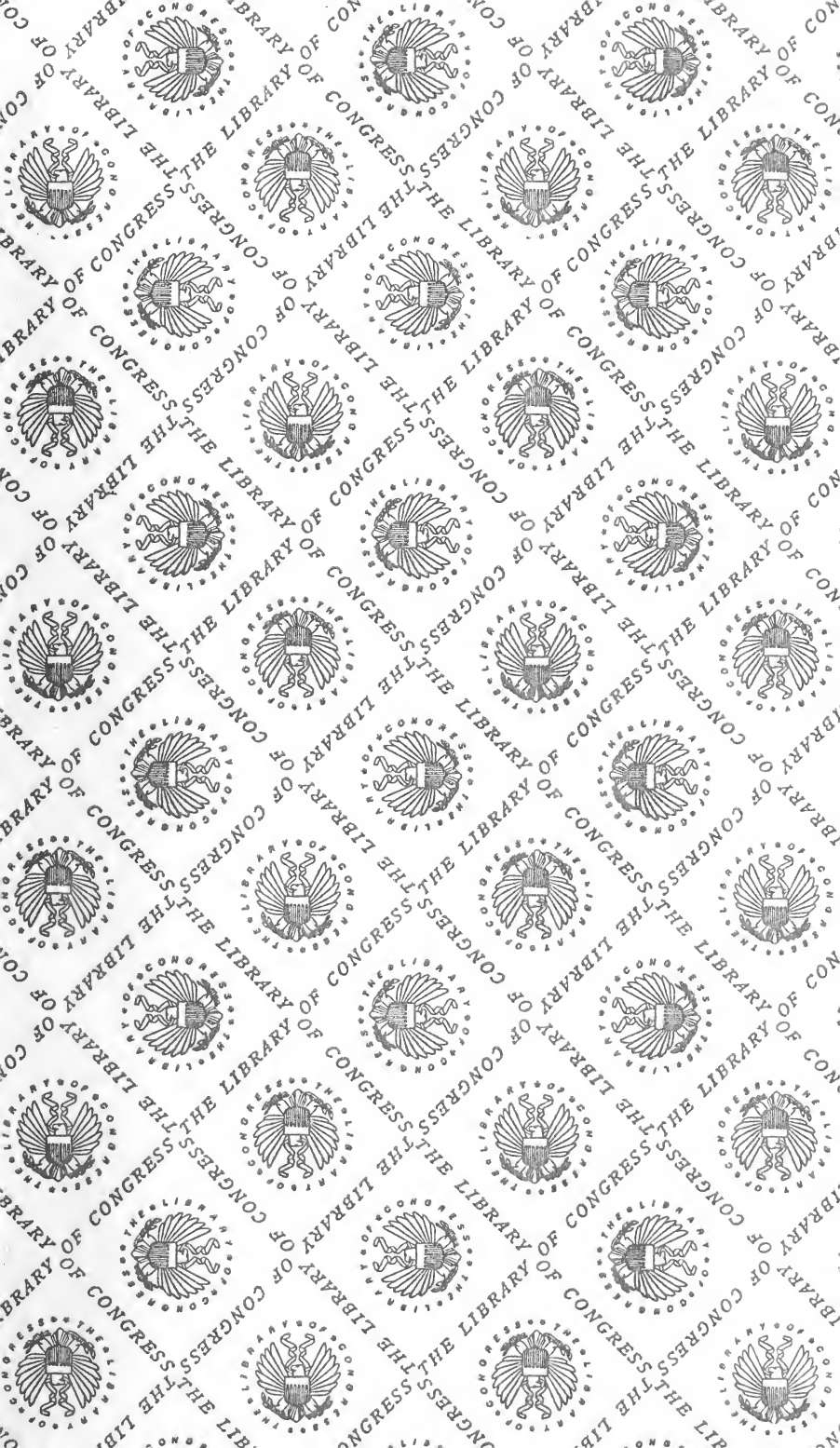
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Prof. Spencer F. Baird

GREAT
International Expositions:

THEIR

Objects, Purposes, Organization, and Results.

AN ADDRESS

DELIVERED BEFORE THE

American Centennial Commission,

BY

WILLIAM P. BLAKE,

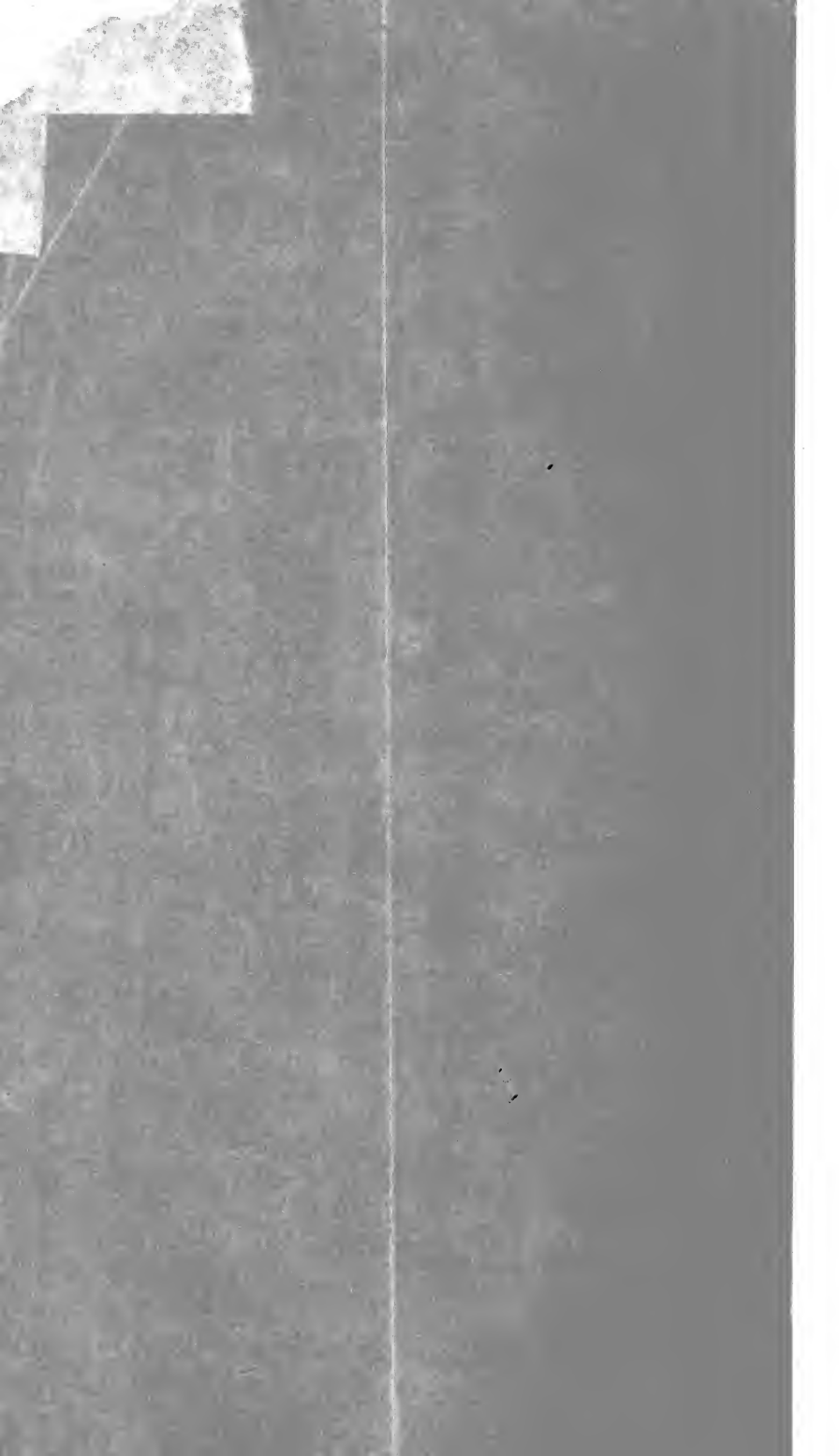
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GREAT INTERNATIONAL EXPOSITIONS.

MR. PRESIDENT AND GENTLEMEN OF THE COMMISSION :

You have requested me to address you upon the objects and purposes, plan of organization, general success and defects of the World's Fair in New York in 1853, and of the Paris Universal Exposition in 1867.*

The objects and purposes of the two exhibitions named were very different, though both contributed to the same result—the advancement and diffusion of knowledge, the promotion of the interests of mankind in all that relates to their material well-being and to their intellectual and moral condition. The great and immediate functions of exhibitions are to stimulate and educate. They act, not only upon the industrial classes, but upon all classes of men. They increase as well as diffuse knowledge. By bringing together and comparing the results of human effort, new germs of thought are planted, new ideas are awakened, and new inventions are born. They mark eras in industrial art, and give opportunities to compare the relative progress of nations. In their full scope and meaning they are by no means confined to the exhibition of natural and manufactured products, machines, and processes; but they include all that illustrates the relations of men to each other and to the world in which we live, all products of human thought and activity in all the arts and all the sciences.

Exhibitions have not always been instituted with such a breadth and scope. In many cases the hope of pecuniary profit has brought them forth. The grand financial success of the London Exhibition of 1851 aroused the attention of the speculative and enterprising in various capitals. Exhibitions were

*At the request of some of the members of the Commission, I have added short notices of other international displays, believing it to be desirable to have as many facts as possible, bearing upon the organization and results of expositions, brought together for convenience of comparison and reference.—

immediately proposed in Dublin, in France, and in the United States. The expectation of gain may be said to have been the origin of the

NEW YORK WORLD'S FAIR OF 1853.

It was started by a New York joint stock company, and the prospective dividends were "discounted" in the height of the excitement, leaving, in most cases, the burden of loss to be borne by second and third hands, not by the original projectors. There were some exceptions. The objects were rather to secure a grand show, and to achieve a financial success, than to advance the higher interests of mankind.

There was, however, an expression of a desire to make a more just and equally sustained exposition of our resources, industry, and arts, than had recently been made at the London Exhibition, and further, to give the masses in America an opportunity to see and compare the manifold productions and applications of the arts of design from abroad. Any desire to reproduce or imitate the London Exhibition was disavowed; but the great aim was said to be "to draw forth such a representation of the world's industry and resources as would enable us to measure the strength and value of our own, while it indicated new aims for our enterprise and skill."

New York was selected as the locality, for its advantages as a commercial centre, and as the chief entrepôt of European goods. A lease of Reservoir Square was obtained from the City, and in March, 1852, the Legislature of New York granted a charter, under which the "Association for the Exhibition of the Industry of all Nations" was organized and carried forward.* The influence of the General Government was extended on behalf of the Association, and the co-operation of European nations was solicited. The building was made a bonded warehouse, so that goods might be received and exhibited free of duty. Agents were sent abroad to secure desirable objects for exhibition, and to solicit the encouragement and support of foreign governments.

But the organization of an International Exhibition was a new undertaking in the United States. We lacked experience, and

*By the terms of the Act, the issue of stock was limited to three hundred thousand dollars; but it was afterwards amended so as to permit an issue to the amount of half a million dollars. A call for subscriptions to the stock resulted in about one hundred and fifty persons and firms taking the first two hundred thousand dollars within a short time. The par value of the shares was \$100, and they sold at one time for \$175.

did not begin in time for such a great work. The breadth and the detail of the work essential to great exhibitions were not appreciated, nor were they sufficiently provided for at the outset. The general plan was not perfected sufficiently long before the time fixed for opening. The building was not completed in time. The installation was delayed, and disappointment and confusion resulted. The administrative and executive force was found to be insufficient as the work of preparation progressed, and aid was eagerly sought in various directions. At the eleventh hour the executive control was given to two eminent naval officers.

No sufficient provision was made in advance for the distribution of the labor of collecting and securing objects, products, and information. The formation of local committees in various parts of the country was too long neglected,* and as the time approached for the opening, the proper material to form an exhibition was not forthcoming. The results were partial and unsatisfactory. It did not become a truly national exhibition.

In the mineral department, for example, it was found that although we might print circulars and applications in blank by thousands, and spread them broadcast through the mails, reaching the mining districts and metallurgical establishments, the responses were few and scanty. The producers of raw materials have no special pecuniary inducement to exhibit. It is rare that they appreciate their duty to the industrial arts and to the public in great exhibitions. It was, therefore, necessary in the case of the New York Exhibition, as it is in all exhibitions, to make special and direct efforts by competent persons, in order to secure a proper representation of the raw unmanufactured products of the country.

UNMANUFACTURED PRODUCTS.

In the Paris Exposition the display of raw and unmanufactured products was superb, and was so chiefly because the production of these raw materials, which underlie the industrial development of a nation, is under the special care and patronage

*The President of the Association, Mr. Theodore Sedgwick, under date of 10th November, 1852, announced the resolution to raise local committees in the principal manufacturing and commercial centres of the United States. Such committees were formed in Boston, Connecticut, St. Louis, New Orleans, Baltimore, in Pennsylvania and in Ohio. Special committees were organized in Philadelphia and other cities, for the purpose of gathering together a proper collection of the ores and minerals of their respective sections, and this work was in part paid for by the Exhibition Association.

of the governments. Through the well-organized Departments of Agriculture, of Mining, and of Forestry, in France, Belgium, Prussia, Austria, and other countries, very complete and effective displays were secured outside of the special contributions of great establishments. And here allow me to say that we may rightfully expect much from the intelligent co-operation of our own Department of Agriculture, and from State Agricultural Societies. But our mines receive little special care or patronage from the government. The magnificent mineral domain of the United States is left to take care of itself. So of our forests. In these important departments, of which, in a young country like ours, other nations expect of right to see a very prominent display, we were deficient in 1853, and without care will be so again.

The ownership of the New York Crystal Palace, by virtue of the transfer of the scrip, soon changed hands, and the directory was changed. One result of this was, that pledges made in good faith by the first promoters could not in all cases be redeemed. Many exhibitors suffered by loss and damage, and finally the structure was destroyed by fire. The combustible nature of the interior was one of the great defects of the construction.

Although built chiefly of iron and glass, the floors, the ground floor and those of the galleries were of wood, and so also were the roofs, even to the dome. These roofs were of matched deal, covered with tin sheathing, except where pierced for light. Even the rafters were made of strips of wood between plates of iron. The frame work was a system of iron columns and girders. The general plan of the building was in the shape of a Greek cross with a large dome in the centre, but by building a one-story lean-to in each angle of the cross, the plan upon the ground became octagonal, with two broad aisles or avenues crossing at right angles. The extent and shape of the ground at the disposal of the Association did not permit of using a rectangular building. The lot was only four hundred and forty-five feet by four hundred and fifty-five feet square. The length of each diameter of the cross was three hundred and sixty-five feet five inches, and the width of the arms one hundred and forty-nine feet five inches. The dome was the chief architectural feature of the building. It was one hundred feet in diameter, and its height to the springing line nearly seventy feet, and to the crown of the arch one hundred and twenty-three feet. The interior of this dome was beautifully decorated with arabesques of white and blue, and by thirty-two stained glass

windows between the ribs. Gas and water were supplied to every part of the structure, the latter being distributed with reference to use in case of fire. Over eighteen hundred tons of iron were required for the building, three hundred of which were wrought iron, and the remainder cast iron. Of glass, there were fifteen thousand panes, or fifty-five thousand square feet; and of wood, seven hundred and fifty thousand feet, board measure. The total area or floor space was about two hundred and fifty thousand feet, or five and three-fourths acres.*

* In view of the importance of details of construction with reference to a plan for the building of 1876, I add the following:

PRINCIPAL DIMENSIONS OF THE NEW YORK BUILDING.

From the principal floor to the gallery floor,	-	-	24 ft.
" " " " to the top of second tier of girders,	-	44	4 $\frac{3}{4}$ in.
" " " " to the top of third tier of girders,	-	59	10
" " " " to ridge of nave,	-	67	4
" " " " to top of bed-plate,	-	69	11
" " " " to top of upper ring of dome,	-	123	6
From Sixth Avenue curb-stone to top of lantern,	-	151	
" " " " to top of tower,	-	76	9
Area of first floor, 157,195 square feet.			
Area of second floor, 92,496 square feet.			

249,692 square feet, or, 5 $\frac{3}{4}$ acres.

There were in addition to the main building three entrance halls, each twenty-seven feet wide, and approached by flights of steps. The columns supporting the galleries divided the interior into two principal avenues or naves, each forty-one feet five inches wide, with aisles fifty-four feet wide. These aisles were still further divided by the rows of columns at right angles into square and half square spaces, measuring twenty-seven feet on a side. There were one hundred and ninety cast iron columns on the first floor, octagonal, eight inches in diameter, and twenty-one feet high. The second story had one hundred and forty-eight columns, seventeen feet seven inches high, rising above the others. These columns were connected by wrought and cast girders, the first forty feet nine inches long; the second twenty-six feet four inches. Of these girders, which served to support the floors of the galleries as well as to brace and strengthen the building, there were two hundred and fifty-two and one hundred and sixty on the upper columns under the roof. The dome was supported by twenty-four columns rising to a height of sixty-two feet above the principal floor, and surmounted by a cast-iron bed-plate, to which the cast-iron shoes for the ribs of the dome were bolted. These ribs were thirty-two in number, and made of two curves of double angle-iron, connected together by lattice work. These ribs were secured at the top by a horizontal ring of wrought and cast-iron, twenty feet in diameter, above which rose the lantern.

The glass for this palace was one-eighth of an inch thick, and was enamelled so as to keep out the direct rays of the sun, and prevent the great heat and glare which results in this climate when ordinary glass is used. This glass was made at the Jackson Glass Works, in New York, and was enamelled at Camp-town, New Jersey.

In order to secure uniformity in the castings, a pattern shop was established in New York, and the patterns were supplied to the several establishments contracting for the manufacture of castings.

The cost of the building was about \$200,000, being about eighty cents per square foot of floor space, including galleries.

At each angle of the building there was an octagonal tower seventy-six feet high and eight feet in diameter. Twelve broad staircases connected the main floor with the gallery. It soon became evident that more space would be required than was afforded in the building, and an addition was made upon one side, in the form of a rectangular gallery, between the principal building and the reservoir. This addition was four hundred and fifty-one feet long and seventy-five feet wide. It was designed for the machinery in motion, the mineral department, and the refreshment saloons.

In October, 1852, the mason work was completed, the greater portion of the iron work was contracted for, and a large part of the castings were delivered upon the ground. On the 30th of October the ceremony of raising the first column took place. It was then confidently expected that the official opening of the exhibition would take place at the specified time, May 2, but it was delayed until July 14, 1853.

Among the designs submitted for the building was one by Sir Joseph Paxton, and presented by him to the association. The ground plan was a parallelogram, six hundred and fifty-three feet long and two hundred feet wide, covering, with an outer terrace, about three acres. Another plan proposed an amphitheatre, one thousand two hundred feet in circumference, constructed of iron and glass, the patterns being such that the parts, when taken down, could be used again in building warehouses. The lamented Downing also presented a design for a colossal dome, to be built chiefly of wood and canvass, in such a manner as to combine lightness with strength. Another plan contemplated a great octagonal dome, supported by ribs made of bundles of gas pipes, and still another plan proposed a building with a suspension roof.

THE DUBLIN EXHIBITION.

At the International Exhibition held in Dublin in the same year, 1853, the building was a series of parallel halls, costing £80,000. The number of season tickets sold was 366,745; of daily visitors, 634,523; and the receipts were £47,363. Ten thousand persons were present at the opening, May 12.

THE GREAT EXHIBITION OF ALL NATIONS, IN 1851.

This, the most successful of all the great exhibitions, and which, as already stated, stimulated similar enterprises in various places, and particularly the New York Exhibition, was

located in Hyde Park upon about twenty acres of ground, originally selected for the purpose by Prince Albert. The building, of glass and iron, was designed by Sir Joseph Paxton, modified somewhat by the celebrated engineers Stephenson and Brunel. The ground plan was a parallelogram with an arched transept across the centre. The total superficial area was originally fixed at 800,000 square feet, but it was afterwards increased to 1,000,000 square feet, or more than twenty acres of ground. It was assumed that of this space Great Britain would occupy one-half, and foreign nations the other half.

The total number of exhibitors was between 15,000 and 16,000. The payments on account of the buildings and fittings were £170,000, and, taking the net superficial area covered at 1,000,000 square feet, the cost per square foot was about 3s. 5d. The cost of the exhibition, including the maintenance, superintendence, medals, and legal expenses, was, the building included, about £292,795. The contract for the building did not, however, include more than its use for the time specified. It remained, at the close of the exhibition, the property of the contractors, otherwise the cost to the exhibition commission would have been £100,000 greater.

This exhibition was opened to the public on the first day of May, and was closed in the succeeding October, having been open for one hundred and forty-one days. The building was closed in the evenings, visitors being admitted during the day only. The total number of visitors for the whole period of the exhibition was 6,039,195. During the one hundred and forty-one days 773,766 entered with season tickets. The gross receipts from all sources were £506,100. The actual number of jurors was 318,167 British, and 157 foreign, and they were assisted by 100 associate jurors. The total number of awards or prizes was 5,248.

THE PARIS UNIVERSAL EXHIBITION OF 1855.

This exhibition was projected and mainly executed by a commercial company organized in Paris, but it was managed and its financial success guaranteed by the French government. There were many separate buildings, but the principal one was a permanent structure on the main avenue of the Champ Elysées, and generally known as the Palais del'Industrie. An annexe, four thousand feet long, on the bank of the river Seine, was mainly devoted to the exhibition of machinery. A third building, at some distance from the others, was used for the

fine art department. Another building, known as the Panorama Rotunda, was used for the display of the crown jewels of France, for tapestries, carpets, etc.

The total horizontal space occupied by all of the countries exhibiting in the industrial departments, including the passage ways and public rooms, was 152,052 square metres, or about 1,770,000 square feet. About 2,000 square metres were covered in the fine arts division.

The total number of exhibitors is stated at 23,954, of which 21,779 were in the twenty-seven industrial classes, and 2,175 were in the three classes assigned to the fine arts.

The cost of this exhibition was 11,264,520 francs = £450,580, 16s., about \$2,253,000. But this sum does not include the cost of the main edifice, the Palais de l'Industrie, a permanent structure which is yet used by the government upon great occasions. If this had been included in the estimate of costs, this estimate would have been nearly doubled. On the basis of 169,691 square metres of space, or 1,866,000 feet, and leaving out of consideration the cost of the Palais de l'Industrie, the cost per square foot was nearly 7s. 3d., or about \$1.80.

At this exhibition Great Britain expended £39,259.

This exhibition continued for two hundred days, commencing in May. The total number of visitors was 5,162,330, and the total receipts were 3,202,485 francs, or £128,099, 8s. sterling, about \$640,496. The total number of jurors was 398, of whom 208 were assigned to France, and 190 to foreign countries.

INTERNATIONAL EXHIBITION OF 1862.

The buildings for this exhibition were erected at South Kensington, upon a portion of the estates acquired by the royal commission of the exhibition of 1851, out of the surplus fund of that exhibition, and a Parliamentary grant.

The principal buildings covered about seventeen acres of ground, exclusive of two annexes covering about seven acres more, being in all about twenty-four acres. The shape was nearly rectangular, measuring about 1,200 feet from east to west, and 560 feet from north to south. The buildings, though solid and substantial in character, were afterwards removed, the site being required for national purposes.

The total area of covered space was 1,291,800 square feet, of which 147,700 square feet were devoted to refreshment rooms, offices, and passage-ways. The total area roofed in was 988,000

square feet. One-half of the space was reserved for Great Britain, and the other half was assigned to foreign countries.

The number of exhibitors was 28,653, including 2305 artists. The entire cost of the undertaking, in round numbers, was £460,000. The contractors were to receive £200,000 absolutely, and an additional £10,000 if the receipts reached half a million. A guarantee fund of £250,000 was proposed, and the subscriptions reached nearly £450,000. Taking the total cost of the exhibition buildings at £321,000, and the total covered space at 1,292,000, square feet, the cost per square foot was nearly five shillings, or \$1.25. The exhibition was opened May 1st, and closed November 15th, making a total time of 171 days during which visitors were admitted. The number of visitors reached nearly 6,225,000, and the gross receipts from all sources were £459,631, in round numbers \$2,298,155. The total number of jurors and associate jurors was 620, and the whole number of awards 13,423, of which 8141 were in the form of medals, and 5282 honorable mentions. No awards were made in the Fine Arts Department.

PARIS UNIVERSAL EXPOSITION OF 1867.

The intention of the French Government to have a Grand International Exhibition at Paris, in 1867, was announced as early as June, 1863, but the appointment of a commission, and the designation of the time of opening and closing, was not published until June, 1865. An imperial decree of that date placed the work under the direction of an imperial commission of sixty members, of which the Prince Imperial was named president; the Minister of State, the Minister of Commerce and Public Works, the Minister of the Imperial Household, Vice Presidents, and M. Leplay, Councillor of State, commissioner general.

Thus notice was given to the world four years in advance of the opening of the exhibition, affording, in most cases, ample time for preparation. Our own government was officially notified in March, 1865, and Mr. Seward, then our Secretary of State, promptly pledged the co-operation of our government and people.

The locality selected for the exhibition was the Champ de Mars, the great military parade ground, extending from the military school to the Seine, and from the avenue Labourdonnaye to the avenue Suffren, forming a rectangle of 48 hectares, or 119 acres. To this was annexed the island of Billancourt,

giving an additional area of 21 hectares, or 52 acres ; making a total of 171 acres appropriated to the exposition.

The Champ de Mars being the property of the government, and free from constructions or improvements of any kind, was very suitable for the intended building, and withal was easy of access from the more thickly settled portions of the City. On one side flowed the Seine, and on the other a branch from the railway encircling the City, gave the means of rapid transit to and from the building.

The ground was given up by the government on the 28th of September, 1865, and the first iron pillar of the building was raised on the 3d of April, 1866. At the end of the year the structure was comparatively ready for the exhibitors.

There was much delay and backwardness, although such great efforts had everywhere been made to work up to the appointed dates. The opening took place as intended, though the building was not by any means in order. Many of the goods were in the packing cases, and those that had been unpacked were not in all cases properly placed for exhibition, or for examination by the international jury. In the section appropriated to the United States, the placing of the products was about half finished ; many of the objects intended for the exhibition were delayed on the road between Paris and Havre, which had become clogged by the rapid accumulation of freight. Very little of the machinery was ready for movement in any section of the building. The contractors for transporting, carting, for carpenters' work, and for decoration, were unable to finish their work in time, and they gave up to others, who, in their turn, broke down. It was impossible to make a complete catalogue. The deliveries in many cases did not correspond with the invoices, and in the haste and confusion there was no time to investigate or to correct errors. Considering the fact that the United States had at least two years' notice and opportunity for preparation, we are warned of what may be expected in 1876, unless much greater and more timely efforts are made.

THE CLASSIFICATION.

It should be remembered that this exhibition was four times as large as any which had preceded it, and that it was much more comprehensively organized. The classification was the most complete and perfect yet devised. It was the result of the careful study and the experience of former great international exhibitions, particularly those of 1851, 1855, and 1862.

It compassed the whole range of natural and artificial products, and gave a place to objects illustrating scientific or social progress. The ten groups, as below, were sub-divided into ninety-five classes, and they together form a very complete index of the industries of the world. *

Group I.—Works of art, classes 1 to 5.

Group II.—Apparatus and application of the liberal arts, classes 6 to 13.

Group III.—Furniture and other objects for the use of dwellings, classes 14 to 26.

Group IV.—Clothing, including fabrics, and other objects worn upon the person, classes 27 to 39.

Group V.—Products, raw and manufactured, of mining industry, forestry, &c., classes 40 to 46.

Group VI.—Apparatus and process used in the common arts, classes 47 to 66.

Group VII.—Food, fresh or preserved, in various states of preparation, classes 67 to 73.

Group VIII.—Live stock, and specimens of agricultural buildings, classes 74 to 82.

Group IX.—Live produce, and specimens of horticultural works, classes 83 to 88.

Group X. was devoted to the exposition of objects and methods designed to ameliorate the moral and physical condition of men, thus bringing in educational, sanitary, and other great departments of social effort. Under this head, for example, were found the school houses, school apparatus and books; improved cheap dwellings for workmen; and the exhibitions made by the Sanitary Commission. Here, also, were found a series of reports, written and published as a part of the exposition, upon the progress of letters and science in France, in the twenty years preceding 1867.

PLAN AND ARRANGEMENT OF THE BUILDING.

In previous great exhibitions, grand architectural effects were attempted; the beauty of the building was considered an essential part of the display, and large sums were expended in exterior and interior decoration. This was also the case in the New York Crystal Palace. At Paris, in 1867, the building was subordinated to the grouping and the comparison of the various objects. There was nothing particularly attractive or

* The classification complete, with the classes in full, will be found in the first volume of the Reports of the United States Commissioners.

beautiful about the construction. It commanded attention from the novelty of its form, its size, and its special adaptation to the classification, but not for its beauty.

The leading feature of the plan was the division of the space into seven concentric halls or galleries, all upon one floor, and each one devoted to a particular group or class of objects. The form of the building was generally considered to be elliptical, but it was in fact a parallelogram with semi-circular ends. Its greatest length was 482 metres, 1,581 feet, and its breadth 307 metres, 1,218 feet. The outer gallery was 1,200 metres, or three-fourths of a mile in length. A central space was reserved for a garden with fountains and statuary, and in the midst of this was erected a pavilion to receive the standard of the various systems of weights and measures of the world.

The whole space within the outer limits of the building measured 146,000 square metres, or 36 acres. There was no upper gallery or second floor, except a narrow one used as a promenade along the medial line of the hall devoted to the display of engines and machinery in motion. Outside of this, and in all directions upon the Park, were the restaurants, offices, and retiring rooms.

The exposition, as a whole, was divided into three portions; the first, called the *Park*, comprising the palace and outside structures, and the exhibition along the banks of the Seine; the second, called the *Reserved Garden*, containing the botanical, horticultural, and piscicultural collections; the third, called *Billancourt*, the name of an island in the Seine, where the agricultural implements were exhibited. To facilitate the practical trials of the latter, the Emperor gave up to the competitors all the land and crops they required. Thus the mowing machines were tried at the Emperor's farm at Fouilleuse, near St. Cloud, and the reapers at the imperial establishment at Vincennes.

As three out of the ten groups—such as the agricultural exhibitions, live produce, &c.—could not be properly placed in the building, only seven galleries were required and constructed, and the exhibition of the other groups was made at Billancourt.

In the construction of this building upwards of 370,000 cubic metres of soil had to be removed to make room for foundations, drains, air passages, and water pipes. The outer circle was excavated so as to give a succession of vaulted cellars built of stone and concrete, and lined with cement. The two interior galleries of the building were built of stone, and the seven others of iron.

MACHINERY GALLERY.

The outer circle, devoted to the engines and machinery, was the highest and the broadest of all. Its width was 114 feet, and its height, to the top of the nave, 81 feet. The roof was formed of corrugated iron and supported by 176 iron pillars (each weighing 24,000 pounds) upon which the arches or ribs were placed. Along the centre of the whole length of this great machinery gallery or arcade an elevated platform was supported upon iron columns, and afforded a safe and convenient promenade and point of view for the machinery below. It appeared to support the line of shafting by which motion was communicated to the various machines, but this shafting was sustained by a separate frame.

The supply of water for this enormous structure, and for the park and its various buildings and fountains, was obtained from the Seine, and was raised by powerful steam pumps to a reservoir placed upon the high ground on the opposite bank. This reservoir had a capacity of over 4,000 cubic yards of water, and was made water-tight by a lining of concrete. The main conduit leading from this reservoir crossed the Seine by the bridge of Jena, and traversed the whole length of the Champ de Mars.

Both the park and the building were bisected through the entire length by one straight avenue leading from the grand entrance opposite the bridge of Jena to the front of the Military School at the opposite extremity of the Champ de Mars. This was crossed at right angles by three other broad avenues leading to the side entrances upon the public streets. These principal avenues, together with several others at each end, radiating from the central garden to the outer circle, intersected each gallery at right angles, and divided the whole building into sixteen sectors of nearly equal area.

The objects exhibited by France and its colonies occupied seven of these sectors: England filled two and-a-half, and the United States one-third of one, exclusive of the displays in the buildings outside.

It will be seen that the form and arrangement of the building, and the disposition of its contents, was in harmony with the classification and grouping adopted by the Imperial Commission.

To each of the first seven groups a gallery of the building was assigned. Thus Group I., works of art, occupied the inner circle or gallery 1, and so on to Group VII., which occupied the outer circle.

By following one of these galleries the observer passed in succession among the productions similar in kind of different countries. By following the avenues he passed successively through the different productions of the same country. The student, therefore, could investigate the condition of any particular art or industry as manifested by different nations, or he could pursue his studies geographically, and note the characteristic productions of each country, and compare them as a whole with those of other countries. The arrangement facilitated exhibition, prompted study and comparison, and in these respects fully realized the intentions of its authors.

GALLERY OF HISTORY OF LABOR.

After the adoption of this classification it was decided to devote a portion of the inner gallery, next to the central garden, to antiquities, so as to give a history of human labor.

This, apparently an afterthought, was one of the most interesting departments of the exhibition, and to almost all persons. In it the birth and progress of many of the arts was distinctly shown. Even the pre-historic period was represented by collections of flint and bone implements from caves and from the lake dwellings of Switzerland. The bronze period was illustrated by numerous implements and manufactures in that material, and so on through the great period of human history to the present age of steel.

PROGRESS OF INVENTIONS.

And here let me suggest that in our classification we should give a prominent place to an exhibition of articles showing the gradual development of the industrial arts in the world, and especially to such objects as will show the development and progress of inventions in all departments of art and manufactures in our own country during the century.

THE IMPORTANCE OF THE PARK.

The visitor to the exposition was at once forcibly impressed with the importance and extreme interest of the Park as a part of the exhibition. It was most tastefully laid out with avenues and winding paths, and was adorned with trees, shrubs, and flowers, all planted since the ground was first broken for the building, on what was previously the barren and indurated surface of the Champs de Mars. A few short months sufficed

to make a total change. Water was brought in artificial lakes, canals and streams were made; grottoes were built, and gardens were planted with flowers; constructions of all kinds arose as if by magic; and before the close of the exposition, examples were seen of the peculiar architecture of almost all the nations of the earth, from the tent of the wandering Arab to the gilded palace of Europe. These were things of beauty, a constant source of instruction and pleasure, giving a distinct and unique character to the whole exhibition as compared with others, and it must be a constant source of regret to those who had the satisfaction of seeing them, that they were all demolished and removed at the close of the exposition. In a favorable locality for an exhibition, such, for example, as Fairmount Park affords, there is no reason why such ornamental accessory constructions should not be so located as to remain, after the close of the exhibition, to permanently adorn the grounds.

THE OPENING.

The exposition was duly opened according to regulation on the 1st of April, and closed on the 4th of November. The building was not kept open for visitors in the evening. Every afternoon, at sunset, all persons, except the guards, were excluded, and the doors were closed.

COST AND RECEIPTS.

The cost of the exposition to France did not fall far short of the estimate made by Béhic, the Minister of Agriculture, Commerce and Public Works, after an attentive study of the expenses of previous expositions. He estimated that the expense would be from 18,000,000 to 20,000,000 francs, and that the receipts would perhaps reach from 7,000,000 to 9,000,000, leaving a deficiency of about 12,000,000 francs. He reported to the Emperor that the practical utility of expositions had been so clearly demonstrated, that the State and the City of Paris would be justified in contributing this amount. It was proposed, also, that if the receipts from all sources did not cover the balance of the costs (over and above the amount of (12,000,000), the deficiency should be met by a guarantee company, and in case of a surplus from the receipts, this surplus, or profit, should be divided equally between the State, the City, and the guaranty company. These propositions were carried into effect, and it is understood that there was no loss or defi-

ciency to be made good by the company, but rather a profit to be divided. More than 10,000,000 persons visited the exposition, and the receipts from them and from other sources were probably considerably more than 10,000,000 francs.

But this was by no means the total cost of the exposition. Each country bore the expense of installation and cases for its exhibition. The expenses of the United States Section, for example, exclusive of salaries, were about \$90,000 in Paris and \$50,000 in New York, the latter chiefly for packing, storing, and forwarding. The expenditure by Great Britain, after deducting the proceeds of sale of fittings, furniture, &c., was \$600,000. Egypt, occupying only about one-twentieth of the space, expended \$300,000; Prussia (exclusive of North Germany), over \$150,000; Italy, over \$160,000; and Austria, \$200,000.

Although, in the main building, the plan and decoration was subordinated to the classification and the exhibition of objects, each nation erected courts or chambers within the limits assigned to them, and these were in many instances highly decorated and ornamented. These had the effect of breaking the continuity of the exhibition in groups and classes, and so far were adverse to the results aimed at by the arrangement of similar articles in zones. But it had the advantages of nationalizing in a high degree the exhibition from each country, and of giving greater variety to the exhibition.

It was found, also, that the proportion of articles in any group or class was very different in different countries, and consequently that the amount of zonal space was in some cases insufficient in one group, while ample in another. It resulted, that the superabundant articles were installed out of their appropriate places according to the system, and were to be found in various parts of the building.

A portion of the large expenditure by Great Britain was for assisting deputations of British artisans to visit the exposition, with facilities during their stay for studying and reporting upon the various classes. One of the results of their visit was a volume of reports of high value to those engaged in the special industries discussed.

INDUSTRIAL PUBLICATIONS.

Among the more important results of the Paris Exposition is the vast amount of industrial literature to which it has given rise. Nearly every great nation represented there published

reports embodying the results. Thirteen volumes were published by the French government, six volumes by Austria, six by Great Britain, and six by the United States. Over three hundred separate works or publications have been made, and in various languages, upon the whole or portions of the exhibition. These printed results make the exposition a permanent one. The teachings survive the demolition of the buildings. The press is the right arm of such displays, carrying the useful and best results into the remote corners of the earth, interesting and instructing artisans and others who can not leave their homes to see with their own eyes.

Even our New York Exhibition was fruitful of results in this direction; two or more illustrated volumes, descriptive of improved machinery and processes, were published for general circulation.* At the Paris Exposition a vast amount of industrial statistics and information was given in the catalogues published by each country. This was designed from the first to be a prominent and valuable feature of the occasion. France led the way, and each country was requested to contribute such information with its products. The programme contained the elements necessary to a comparison in an economical point of view of the relative force and wealth of nations.†

In France most of the information relating to the industries was obtained by the Class Committees of Admission, and formed a fitting introduction to each class, useful to the jurors and to all who made a careful study of the exposition.

The jury reports, in thirteen volumes, prepared by a great number of savans and specialists, under the general direction of M. Michel Chevalier, is a work of unusual value, and it appeared in good season at the close of the exposition. The importance of promptness in publishing the results was well appreciated by the British Commission. The services of many eminent men were early secured for the preparation of reports to be published during the progress of the exhibition, in the Illustrated London News, this medium being chosen as one of the best to get the information quickly and widely disseminated among the people. The same reports were afterwards collected and published in volumes.‡

* "The World of Art and Industry," illustrated, 4to., pp. 208; G. P. Putnam & Co., 1854. Also, "The Illustrated Record of the Exhibition," 4to.; G. P. Putnam & Co., 1854.

† This programme in full, as translated from the letter of Commissioner Le Play, will be found on page 103 of the Introduction, etc., vol. I., of the Reports of the United States Commission.

‡ There were eighty-seven separate reports, prepared by over seventy persons.

The United States Commission was authorized to employ scientific experts in addition to the ten professional and scientific Commissioners, but with a few exceptions the work of reporting was parcelled out to Committees of the Commission, and, as might have been expected, the Committees did not labor as a unit, and the work, if performed at all, was done by individuals. There is hardly a report in the whole series which is the work of a Committee. Another mistake was made in assigning the work at so late a day. Instead of being entered upon at the very beginning of the exposition, it was in most cases delayed until the end, and the reports, of course, were correspondingly delayed. This should be avoided in the future, and it should be remembered, also, that it is important to divide the work up as much as possible in order to secure completeness and despatch. The preparation of the catalogues required a vast amount of labor and expense. The French official catalogue forms a volume of over 1,500 octavo pages; the British catalogue, in four languages, together with the descriptive portions, makes a volume of over 1,000 pages. The exclusive right to publish the official catalogue was one of the many monopolies sold by the Imperial Commission. For this privilege the publisher paid 503,000 francs.

The concession of exclusive privileges was one great source of revenue. Large sums were paid for the exclusive privilege of posting bills in certain places,* for providing seats for visitors, for chairs on wheels, for exchange offices, for rent of refreshment saloons, etc. These monopolies, however profitable they may have been, and perhaps necessary, were the source of much annoyance and litigation.†

THE MOTIVE POWER.

The Imperial Commission undertook to supply the power needed for the machinery gallery, by contracting for the service with various parties, preference being given to contractors from the countries to be supplied. The contractors were to provide the engines, boilers, boiler-houses and chimneys, with all the necessary steam pipes, and the shafting. But the sum, 600

* For this privilege 50,000 francs were to be paid, and the Commission engaged to give at least 7,000 square metres of wall-space.

† The British Commission was sued for infringing upon the rights granted to the publisher of the official catalogue, and also upon the advertising concession.

francs per horse power, was so low that the work could not be properly performed except at a loss, and the result was that there were serious complaints in some of the foreign sections of want of steam, and the working of the machinery had to be arranged among the exhibitors with reference to this deficiency. In the United States section, no American contractor appearing in time, the contract was given to others.

The boilers were in all cases placed outside of the building in the park, and were covered by ornamental structures, which, in most cases, served to exhibit some peculiar material or method of building.

It is the opinion of Captain Beaumont, R. E., who reported to the British Commission upon the steam and motive power arrangements, that the French went to a needless expense in isolating the supports of their shafting from those of the gallery. It is thought that the tremor would not have been too great if the shafting had been attached to the gallery, but a double line of shafting, supported above the center of the exhibiting space on each side of a narrow gallery, would have been more convenient. Four such lines of shafting were placed upon unstayed columns, and successfully used, in the British section. Again, the curved form of the machinery gallery is pointed out as a defect. This form necessitated the use of universal joints at intervals, when in a straight gallery, or hall, no such expensive and cumbrous fittings would be required.

TRANSPORTATION OF HEAVY OBJECTS.

Heavy objects reaching France by sea, such, for example, as ordnance and boilers, were sent up the river Seine on steamers, and were landed upon the banks within the limits of the exposition. The circular railway around the building was in constant use, and in the opinion of Mr. Cole, the British Commissioner, it would have been almost impossible to have opened the exhibition April 1st without it. Great service was also rendered by steam cranes in unloading goods.

CO-OPERATION OF GOVERNMENT DEPARTMENTS.

The effective co-operation of the several well organized departments of the government of France and other countries, greatly facilitated the work of preparation for the exhibition, and promoted its success. In France, the Departments of the Interior of War, of the Navy, of Public Works, of Public In-

struction, of Finance, and of the House of the Emperor, all made extensive and costly exhibitions. In the British section, eight of the government departments were represented, particularly the War Department and the Admiralty, the Treasury, for public printing, and the department of Science and Art. The collections from this department were specially interesting and instructive. They consisted in great part of reproductions in plaster or in copper, by galvanoplasty, of rare and costly works of art in the museums and private collections of Europe. The collection of such reproductions, which now form a large part of the art collections of the South Kensington Museum, may be considered to be one of the results of the exhibition of 1855, when casts were taken of objects in the Musée d'Artillerie and the Hôtel de Cluny, Paris.* Each succeeding exhibition tends to increase the educational value and efficiency of this great museum of reproductions and works of art, for the opportunity to secure from all countries examples of great artistic merit is too inviting to be lost. Much is also effected by exchange. For example, most of the objects sent to Paris were exchanged for similar objects with the governments of France, Prussia, Russia, and Italy.

INTERNATIONAL JURIES.

The examination of products and making awards was committed to international juries, numbering in all six hundred members.

The number of jurors taken from each nation was in proportion to the ground occupied by each in the exhibition, and the general commissioner of each nation nominated the jurors allowed to his national section.

The organization comprised one special jury, ninety-four juries of classes, ten juries of groups, and a superior council.

The work was divided and distributed among them as follows:

First. The subjects which were presented for the new order of recompenses, intended for persons, establishments, or localities, which, by organization or special institutions, have

* The art collections of the South Kensington Museum number about 13,000 objects illustrative of the history, principles, and processes of decorative art in sculpture, carvings in wood and ivory, decorative furniture, metal work, goldsmith's work, jewelry and lapidaries' work, engraved gems, niello work, arms, armor, pottery, glass, enamels, ancient lac work, textile fabrics, miniatures, &c.

developed harmony among co-operators and produced in an eminent degree the material, moral, and intellectual well-being of the workmen, were submitted to a special jury of twenty-five members, whose decision was final.

Second. The examination of Group No. 1, comprising the five classes of fine arts, was committed to four separate juries, whose reports were subject to revision and adjustment by a group jury formed by the four class juries united, numbering sixty-four members, whose decision was final.

Third. The remaining ninety classes of products were submitted to the inspection of the corresponding ninety class juries, whose work was subject to revision by the group juries and superior council.

Each class jury elected from its own body a President, Vice President, and Reporter.

The nine group juries were composed of the Presidents and reporters of the ninety class juries, with the addition of a President and two Vice Presidents to each group jury, not taken from the class juries, but specially appointed by the respective general commissioners of the national sections to which these appointments were allotted. The Secretary for each group was appointed by the Imperial Commission.

The superior council was formed of the Presidents and Vice Presidents of the nine group juries, presided over by one of the Vice Presidents of the Imperial Commission.

The duties of the class juries were to examine the products in detail in their respective classes, and make lists of the exhibitors whose products they considered deserving of awards, naming the award proposed for each, and the reason of it, which completed their work.

The reports on products and exhibitors thus drawn up were passed to the group juries, whose duty it was to revise them, concurring in the recommendations of the class jurors as far as approved, modifying the parts not approved, and sending them in this form to the superior council.

The duty of the superior council was to decide upon the whole number of awards to be made, and the number of each grade of awards, for which purposes they had a limited authority to add to the whole number which had been recommended, and power to diminish the whole number called for by the juries.

THE EFFECT OF AWARDS.

In regard to the benefits from a system of awards, Commissioner General Beckwith, from whose report the foregoing account of the organization of the International Jury is condensed, says :

“Experience on former occasions has, in the main, justified the awards of the juries, and they have served, not only to confirm established reputations, but to bring into more prominent notice the excellent products of thousands of skilful and worthy producers, who labored previously in comparative obscurity, and whose improved fortunes date from those periods. But the benefits resulting from this are not limited to the successful exhibitors. They are naturally stimulated to renewed efforts to maintain their new positions, which quickens their invention, improves their products, and raises their own standards, whilst their rivals and competitors, who, if equally skilful are less lucky, are thereby compelled to work up to this higher level. A new spirit is thus breathed into every department of industry, and the benefits of increased production, improved qualities and varieties, and diminished cost become universal.”

A serious source of disappointment in the Paris Exposition, at least so far as the United States were concerned, was due to the inability or neglect of many of the local committees to whom certain duties were assigned. Failing adequately to perform those duties, at the last moment they devolved upon the executive. Time was lost; work which would otherwise have been comparatively easy and simple was embarrassed by its incompleteness. The feeling of responsibility diminishes with the distribution of the power. We were late about our contract for motive power in Paris; late in sending on our goods properly invoiced and catalogued, and we did not fully work up to the intent and purposes of that great display.

SUGGESTIONS FOR ORGANIZATION OF FUTURE EXHIBITIONS.

Before leaving Paris, several of the Executive Commissioners united in a memorandum upon the management of future International Exhibitions, as follows :

First. That as the usefulness of International Exhibitions does not depend on their size, but on their selectness and quality, so the tendency to increase the size of each succeeding exhibition should be discouraged.

Second. That it is desirable that future exhibitions should be held in rotation in various capitals.

Third. That the country inviting the exhibition to be held should provide, at its own risk, a suitable building, completely finished in all respects, provided with all conveniences for unloading and loading, and supplied, perhaps, with sufficient glass cases.

Fourth. That before any code of general regulations for the management of exhibitions be promulgated, the commissioners of each nation occupying a given amount of space be assembled to discuss them, each nation having one representative or an equal number of representatives, but that the country inviting the exhibition should have a veto on the decisions and the power of limiting the extent of the exhibition, and the number of the classes to be shown.

Fifth. That in order to promote the comparison of objects the general principle of the arrangement be rather by classes than by nationalities.

Sixth. That no objects be removed out of the exhibition for the purposes of sale, and that means be taken to prevent its becoming a fair or bazaar.

Seventh. That the number of classes adopted in the present Paris Exhibition be greatly increased in future exhibitions.

Eighth. That no prizes of any kind be awarded, but that reports on every class be made and signed by an International jury, which reports should be published during the exhibition, and as soon as possible after the opening.

Ninth. That each country for every class in which it has exhibitors be free to send one reporter for each class.

This document appears in the official report of the British Commission,* and is signed by Henry Cole, Executive Commissioner for the United Kingdom; Schaeffer, Commissioner for Austria; Herzog, Commissioner for Prussia; De Thal, Commissioner for Russia; Chiavarina, Commissioner General for Italy; Beckwith, Commissioner General for the United States.

THE ADMINISTRATION.

Article second of the Imperial decree of February 1, 1865, placed the direction and control of the Paris Exposition in the hands of the Imperial Commission, and the Commissioner General, named by the same decree, was charged with the execution

* Appendix V. to Commissioner Cole's Report, Vol. I of British Reports.

of the measures adopted by the Imperial Commission. All foreign Commissions were invited to appoint an Executive Commissioner to confer directly with the Executive Commissioner at Paris. This was done by most countries. The United States, upon the recommendation of Mr. Bigelow, then our Minister at Paris, was represented by Commissioner General Beckwith, to whose ability we are indebted largely for our measure of success there. The country and the world are also indebted to him and to Mr. Bigelow, then our Minister at Paris, for clear conceptions and statements of the importance and value of such exhibitions to industry and to human welfare in the highest sense. Much may be learned by consulting their utterances, preserved in part in the official reports and records. Their wisdom and experience will be of great service to us. For example, in regard to International Exhibitions, Mr. Beckwith says :

"If it be true that civilization was led in most countries for a long period by a few men of genius skilled in political science and literature, it is not less true that the men of physical science have at length come to their aid.

"The geologists, naturalists, chemists, mineralogists, inventors, and engineers are now directing the labor of the world with a success never before attained.

"As the intellectual domination of the material world increases, the hardships and barrenness of toil diminish, and its products multiply ; and while political science emancipates the enslaved races, physical science enslaves the elements and forces of nature and emancipates mankind.

"In this great movement the largest benefits will fall, with the largest markets in the world, to those who make the best provision for the development and diffusion of the practical sciences as applied to industry.

"No nation produces within itself all these in perfection, nor keeps up with the daily progress in them ; but those are most advanced in the race who adopt the best methods of collecting and disseminating the progressive knowledge resulting from the studies and labors of all.

"Among the methods for this purpose, international assemblies and exhibitions are increasing in numbers, in frequency, and in importance.

"A knowledge of many of the useful and successful combinations of science and industrial art cannot be conveyed in words ; they must be studied in models and specimens, which display at once the combinations and effects, the modes and results.

"These being the products of many localities and many countries, bringing them together facilitates their study, and affords, at the same time, the opportunity of careful and accurate comparisons, without which no study is complete."

Mr. Bigelow, in reference to the coming Centennial Celebration, has suggested the taking of an extra Federal Census, the establishment of a National Museum, and the preparation of a series of monographs, by which the progress and product of civilization in the United States can be shown.*

With your permission, I will add a few facts upon the series of annual exhibitions in England commencing in 1871, and the grand international display to be made in Vienna in 1873.

ANNUAL EXHIBITIONS IN LONDON.

Apparently following the first of the suggestions prepared by Mr. Cole, and subscribed to by several of the executive commissioners in Paris in 1867, Her Majesty's commissioners for

*These suggestions were first published in the N. Y. Tribune, a year or more ago, and are as follow:

First: The taking of an extra Federal Census for that year.

Second: That every art should be laid under contribution for some appropriate memorial of the degree of excellence to which it shall have attained, and with which it will begin the succeeding century.

Third: Competent persons should be invited to prepare monographs by which the progress and product of civilization in the United States could be measured. Such monographs should embrace as topics a statistical history during the past century of our postal service; of telegraphy; of the progress of art, industry, and invention; of immigration; of agriculture: the increase of land under culture, and disappearance of timber; of mining and the development of mineral wealth; of military and naval inventions, discoveries, and achievements; of manufactures; of education; of religious and ecclesiastical progress; of the natural sciences; of the progress of wealth and financial vicissitudes of the country; of fine arts; of literature; of the press; of public charities; the organization and growth of different States; of the changes in municipal, State, and Federal systems; of political economy, and of labor, free and servile, and wages; of law; of medicine; of commerce and navigation; of changes in the social condition of the people in the United States; of the Aborigines; of the climatic revolutions and changes of the continent during the century.

Fourth: It was proposed that a National Museum and Library should be established, to be perpetually associated with this anniversary. The edifice to be dedicated or its corner-stone laid on that day, and be made the repository of such works of art or volumes of national interest as proved worthy of its hospitality; a nucleus, in short, of a collection in which every State should hold herself an owner. To what extent such a collection grows under the influence of national pride, the British Museums and those of the Vatican and Louvre bear witness.

the exhibition of 1851* resolved to institute a series of international exhibitions of selected specimens of the works of fine art and industry, to be held annually in London, the first to be opened in the year 1871. These annual International Exhibitions differ materially from any previous exhibitions. They are comparatively limited in extent. The objects are selected by competent judges before they are admitted, and only a few classes of industrial objects are admitted each year. The arrangement is by classes, not by nationalities as heretofore. No charge is made to exhibitors for arranging and taking care of their objects during the exhibitions. These exhibitions are opened on the first day of May and are closed on the 30th of September. They are held in permanent buildings at South Kensington, adjoining the arcades of the Royal Horticultural Gardens.

Space is not assigned to foreign nations in block, but in each of the classes as may be required. There are no prizes awarded, but a certificate of having obtained the distinction of admission to the exhibition is given to each exhibitor.

The result of the first year's working of this plan has not been made known generally. It does not appear to have excited much enthusiasm or attention. The plan evidently lacks the great elements of success for exhibitions. It is not general and comprehensive, arresting by its novelty and magnificent proportions the attention of nations, and drawing crowds from all countries. It may, perhaps, be more satisfactory to the appreciative few, but can hardly be said to act directly for the benefit of the mass of the people. Its tendency is to make the exhibitions locally rather than generally interesting. It lacks also the stimulating influence of direct awards upon producers.

VIENNA EXHIBITION OF 1873.

The proposed International Exhibition at Vienna is to be opened on the 1st of May and closed on the 31st of October, 1873. The total covered space will be 103,000 square metres, or 43,000 square metres less than the exposition of 1867. The main building, on the pavilion system, will be 905 metres long and 205 metres wide, with a colossal iron cupola 102 metres in diameter and 79 metres high in the centre.

*This Commission has continued to exist since that time, and controls the large property then acquired, using it for the advancement of art and science, chiefly by means of exhibitions.

The art collections are to be placed in a separate building, and the exhibition of machinery is to be made in a hall near the main building, and 890 metres long by 28 metres wide.

It is proposed to so arrange the objects, machines, and representations of methods of manufacture, in juxtaposition, as to give an illustration of the growth of some of the most important of the industries and inventions. The influence of science upon the arts will also be illustrated. An effort will also be made to give a history of the cost of production and of the selling price of a large class of articles. Recent inventions will be subjected to experimental trials; lectures will be given upon late improvements and discoveries, and a congress of delegates from all countries is invited to meet and discuss many questions suggested by the exhibition.

Four classes of awards or prizes will be given.

1. The art medal.
2. Progress medal for decided improvements.
3. Workmen's medal, to those who have largely contributed to the success of any invention.
4. Honorable diploma for distinguished service in elevating the condition of workmen, or in the cause of education.

The various articles to be exhibited will be arranged in the classes as below.

1. Mines and mining.
2. Agriculture.
3. Chemical industry.
4. Food.
5. Textile and clothing industry.
6. Leather and india rubber industry.
7. Metal industry.
8. Wood industry.
9. Stone, clay, and glass industry.
10. Hardware.
11. Paper.
12. Graphic arts and industrial drawings.
13. Machines and means of transportation.
14. Scientific instruments.
15. Musical instruments.
16. Military objects.
17. Marine objects.
18. Architecture and civil engineering.
19. A citizen's dwelling, its interior, furniture, and arrangements.
20. A peasant's house, with furniture.

21. Characteristic national domestic industry.
22. Representations of the value of art museums.
23. Ecclesiastical industry.
24. Historical antiquities exhibited by *amateurs*.
25. Modern works of art.
26. Relating to education.

This, it will be seen, though very different from the classification of 1867, is yet very comprehensive and is capable of being greatly sub-divided.*

In view of our intended exhibition, it is desirable that the organization, administration, and results of this great exhibition at Vienna should be carefully studied and compared with those at Paris. Up to this time the most successful of the large exhibitions have been confined to London and Paris. Large populations are necessary to afford a large number of visitors. Other things being equal, it may safely be conceded that such enterprises are most useful and successful when located in or near a great industrial manufacturing centre. For the industrial classes are the most directly benefited by seeing and comparing the results of skilled labor in different countries and under different conditions. In this view Philadelphia, with its extensive and varied industries, producing in the aggregate over 360,000,000 of dollars worth of manufactured goods annually, the largest manufacturing city in the United States, is a most appropriate place in which to hold a great International Exhibition.

RESULTS OF EXHIBITIONS.

Permit me, in closing, to quote some remarks of Mr. Seward upon the value of great Industrial Expositions :

"From the commencement of the industrial epoch, which dates from the London Exhibition of 1851, the profound significance and value of such exhibitions have been realized by the people and governments of the civilized nations. Their beneficent influences are many and widespread ; they advance human knowledge in all directions. Through the universal language of the products of labor the artisans of all countries hold communication ; ancient prejudices are broken down ; nations are fraternized ; generous rivalries in the peaceful fields

* Further details concerning this exposition will be found in an interesting article by Prof. C. A. Joy, in the *Journal of Applied Chemistry*, January, 1872, from which the above is condensed.

of industry are excited; the tendencies to war are lessened, and a better understanding between labor and capital is fostered. It is gratifying to note that these great exhibitions are planned and executed in the interests of the mass of the people. In this last instance those industries, products, and organizations designed to promote the material and moral well-being of the people were made prominent, and the underlying, animating spirit and impulse of the whole plan were for the advancement, prosperity, and happiness of the people of all nations. One of the most salutary results is the promotion of an appreciation of the true dignity of labor and its paramount claims to consideration as the basis of national wealth and power.

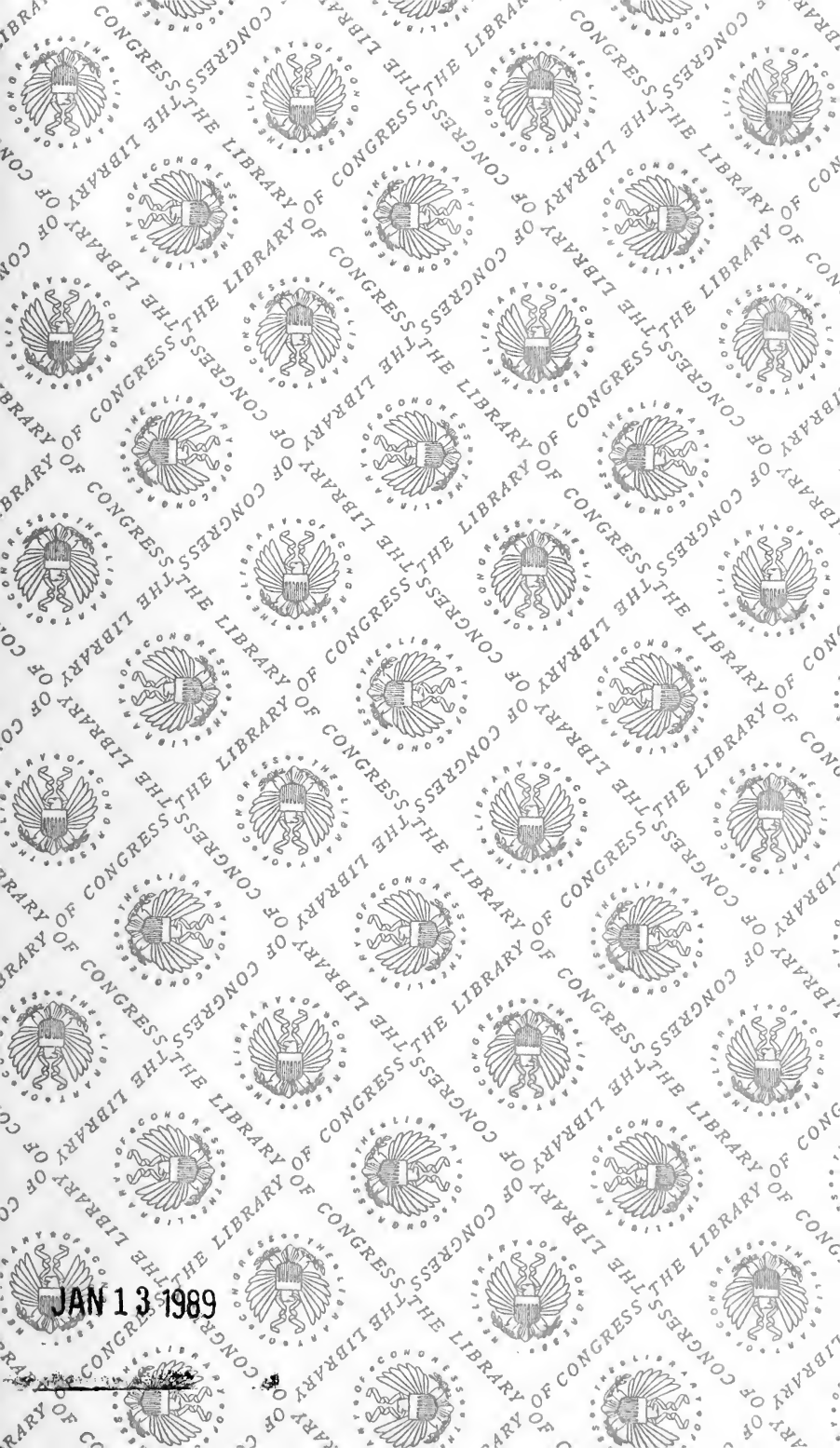
"Such exhibitions have become national necessities and duties, and as such it may be expected that they will be repeated again and again hereafter."

But this is too broad a theme for this occasion. We hope that we understand and appreciate the task before us. The good work has already begun. Who could not be impressed with this who saw last evening in the banquet hall of our hosts of the Union League Virginia shaking hands with Connecticut and pledging united and harmonious action, hand to hand and heart to heart, in the great work of peace, good will, and civilization confided to our care.

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